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EXAMINER

TSOY, ELENA

ART UNIT PAPER NUMBER

1762

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/781,475

Applicant(s)

ANTHONY ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-42 and 45-55 is/are rejected.
- 7) ☒ Claim(s) 43, 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

Amendment filed on November 17, 2003 has been entered. Claim 56 has been cancelled. Claims 29-55 are pending in the application.

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-55, is acknowledged.

Claim Objections

Objection to claims 41, 45-48 because of the informalities has been withdrawn due to amendment.

Terminal Disclaimer

The terminal disclaimer filed on November 17, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,500,871 to Gerardin et al has been reviewed and is accepted. The terminal disclaimer has been recorded.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Rejection of claims 29-41, 50-55 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,500,871 to Gerardin et al in view of Anderson et al (US 6,413,590) has been withdrawn due to filing a terminal disclaimer.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 47 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 47, line 1, "A process according to claim 45" renders the claim indefinite because claim 45 does not have option that monomers form either anionic backbone or anionic side chains. For examining purposes the phrase was interpreted as "A process according to claim 29".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 29-42, 47, 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dransfield et al (US 5,336,521) in view of December (US 6,376,616).

As to claims 30-37, 51-55, Dransfield et al disclose a process for the preparation of particles comprising at least one metal ion (See Abstract; column 2, lines 23-27) which comprises contacting a water-soluble hydrolysable precursor salts such as chlorides, nitrates or sulphates (See column 3, lines 67-68) comprising metal cation (See column 4, lines 32-33) with a dispersion of particulate zirconia of less than 0.2 microns (See column 1, line 48) prepared by hydrolysis of zirconium halide or sulphate in water in the presence of dispersing agent having carboxyl groups (See column 3, lines 6-39, 61-69); and carrying out hydrolysis by adding ammonium hydroxide (See column 4, lines 56-57) thereby forming particles of zirconia coated with hydrous oxides of calcium, cerium, aluminum, yttrium, magnesium, strontium, barium, or titanium (See column 2, lines 12-34). The coating process can be carried out at any suitable temperature but coating at temperatures above ambient, for example 40 °C to 70 °C, appears to improve the filtration properties of the coated product (See column 4, lines 27-31). The maturing process may be carried out for 0.5-1 hr before filtering, washing and drying, redispersing and drying (complete evaporation) the coated zirconia particles (See column 5, lines 50-57).

As to claims 29, 42, 47, 50, Dransfield et al fail to teach that the dispersing surfactant is comb-type polymer comprising either a complexing anionic backbone and stabilizing hydrophilic side chains or a stabilizing hydrophilic neutral backbone and complexing anionic side chains or at least one of the two abovementioned copolymers in combination with at least one complexing anionic hydrophilic polymer (Claim 29), and used in a ratio 0.05-2 (Claim 50); the anionic backbone is obtained from monomers chosen from unsaturated monocarboxylic acids (Claim 42) combined with esters of unsaturated carboxylic acids (Claim 47).

Decemper teaches that a compound having an acrylic backbone with a plurality of anionic groups such as a methacrylamide/methacrylate copolymer (See column 4, lines 46-49, 54-55;

column 5, lines 5-17) and **at least one** polyalkylene oxide-based stabilizing (hydrophilic neutral) substituent (comb structure) such as an alkoxy-terminated polyalkylene oxide structure (See column 2, lines 56-66) is suitable for providing exceptionally stable dispersions of inorganic oxide pigments (See column 3, lines 22-27) such as titanium oxide (See column 7, lines 62-66) having preferably maximum particle size between 100 nm and less than 6000 nm (See column 8, lines 65-67) when used in ratio 0.2 to 0.1 (See column 8, lines 52-55).

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a polymeric compound having an acrylic backbone with a plurality of anionic groups and plurality of stabilizing hydrophilic substituents such as an alkoxy-terminated polyalkylene oxide structure as dispersing surfactant in a process of Dransfield et al in ratio 0.2 to 0.1 since December teaches that the polymeric compound having an acrylic backbone with a plurality of anionic groups and plurality of stabilizing hydrophilic substituents is suitable for providing exceptionally stable dispersions of fine inorganic oxide pigments particles when used in ratio 0.2 to 0.1.

As to claim 38-41, Dransfield et al in view of December fail to teach that ammonia is used in an amount corresponding to 50-130 % of a stoichiometric amount needed to completely hydrolyze the precursor (Claim 38); the sum of n1 and n2, then n1 and n2 conform to the

following inequalities $0 < n_1 \cdot \text{ltreq} \cdot 0.8n$ and $0.2n \cdot \text{ltreq} \cdot n_2 < n$ (Claim 39); the water-soluble comb copolymer forms a transparent solution at 10% by weight in water at the lowest temperature to which said comb copolymer, optionally combined with the hydrophilic polymer, is subjected in the process (Claim 40); the weight-average molecular mass (M_w) of comb copolymer is between 2000 and $5 \cdot 10^5$ g/mol, preferably between 3000 and 10^5 g/mol (Claim 41).

It is held that that the selection of reaction parameters such as temperature and concentration would have been obvious. The molecular mass of comb copolymer is a result-effective parameter because it affects properties of the copolymer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant parameters (including those of claims 38-41) in a process of Dransfield et al in view of December through routine experimentation in the absence of a showing of criticality.

5. Claims 45, 46, 48, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dransfield et al (US 5,336,521) in view of December (US 6,376,616), further in view of Anderson et al (US 6,413,590).

Dransfield et al in view of December fail to teach that the copolymer comprises a stabilizing hydrophilic neutral backbone and complexing anionic hydrophilic side chains, said neutral backbone being obtained from ethylene oxide in the form of an oligomer or of a polymer (Claim 45); the side chains are obtained from monomers chosen from unsaturated carboxylic acids, polycarboxylic acids or their anhydride form, unsaturated amino acids or unsaturated sulfonic acids such as methacrylamide/methacrylate copolymer (Claim 46); the copolymer is combined with at least one polymer obtained by polymerization of at least one anionic monomer

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chosen from unsaturated carboxylic acids, polycarboxylic acids or their anhydride form, or unsaturated sulfonic acids (Claim 48) of 2000 and 5×10^5 g/mol (Claim 49).

Anderson et al teach that a copolymer is functionally equivalent to a graft copolymer or to a mixture of homopolymers (See column 2, lines 24-30). In other words, properties of polymer composition depend basically on polymer units themselves, not on how they are combined, i.e. not on structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a copolymer of any structure including a comb (graft) copolymer structure or a mixture of a copolymer with other polymer for making a backbone and side chains in a process of Dransfield et al in view of December as long as the copolymer or polymer in the a mixture comprises complexing anionic units and stabilizing nonionic units whether in the backbone or the side chains with the expectation of providing the desired benefits since Anderson et al teach that properties of polymer composition depend basically on polymer units themselves, not on how they are combined, i.e. not on structure.

Claim 49 would have been obvious for the same reasons as for claim 41.

Response to Arguments

6. Applicant's arguments with respect to claims 29-42, 45-55 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 43, 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: claim 43 is allowed because the prior art of the record does not teach or suggest side chains obtained from recited macromonomers. Closest prior art of December teaches polyoxyalkylene containing side chains.

Claim 44 is allowed as further limiting allowed claim 43.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30, Mo-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

ETsoy

Elena Tsoy
Examiner
Art Unit 1762

January 8, 2004